

***Amendments to the Claims:***

This listing of claims will replace all prior versions, and listings, of claims in the Application:

***Listing of Claims:***

1. (Previously presented) A method of analyzing vocal signals of a speaker, comprising:  
    using a probability density representing resemblances between a vocal representation of the speaker in a predetermined model and a predetermined set of vocal representations of a number  $E$  of reference speakers in said predetermined model; and  
    analyzing the probability density to deduce therefrom information on the vocal signals.
2. (Previously presented) The method of claim 1, wherein said predetermined model is an absolute model of dimension  $D$ , using a mixture of  $M$  Gaussians, in which the speaker is represented by a set of parameters comprising weighting coefficients for the mixture of Gaussians in said absolute model, mean vectors of dimension  $D$  and covariance matrices of dimension  $D \times D$ .
3. (Previously presented) The method of claim 2, further comprising:  
    representing the probability density of the resemblances between the representation of said vocal signals of the speaker and the predetermined set of vocal representations of the reference speakers by a Gaussian distribution of mean vector of dimension  $E$  and of covariance matrix of dimension  $E \times E$ , said mean vector and covariance matrix being estimated in a space of resemblances to the predetermined set of  $E$  reference speakers.
4. (Currently Amended) The method of claim 3, wherein there are  $N_\lambda$  segments of vocal signals for the speaker, represented by  $N_\lambda$  vectors of the space of resemblances with respect to the predetermined set of  $E$  reference speakers, wherein the resemblance of the

speaker with respect to the E reference speakers is defined as a function of a mean vector  $\{\mu^{\lambda}\}$  of dimension E and of a covariance matrix  $\{\Sigma^{\lambda}\}$  of the resemblances of the speaker with respect to the E reference speakers.

5. (Previously presented) The method of claim 4, further comprising:

introducing a priori information into the probability densities of the resemblances with respect to the E reference speakers.

6. (Currently amended) The method of claim 5, wherein the covariance matrix of the speaker is independent of said speaker,  $\{\tilde{\Sigma}^{\lambda} = \tilde{\Sigma}\}$

7. (Currently amended) A system for the analysis of vocal signals of a speaker, comprising:

databases for storing vocal signals of a predetermined set of speakers and vocal representations associated therewith in a predetermined model by mixing of Gaussians, as well as databases of audio archives; and

means for analyzing the vocal signals using a vector representation of the resemblances between the vocal representation of the speaker and ~~a~~ the predetermined set of vocal representations of E reference speakers.

8. (Previously presented) The system of claim 7, the databases further storing parameters of the vocal signals analysis performed by said means for analyzing.

9. (Previously presented) The method of claim 1, applied to indexing of audio documents.

10. (Previously presented) The method of claim 1, applied to identification of a speaker.

11. (Previously presented) The method of claim 1, applied to verification of a speaker.

12. (New) A system for the analysis of vocal signals of a speaker, comprising:

databases for storing vocal signals of a predetermined set of speakers and vocal representations associated therewith in a predetermined model; and

means for analyzing the vocal signals using a probability density representing resemblances between the vocal representation of the speaker and a predetermined set of vocal representations of E reference speakers.